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Acoustic wave propagation in multifraction gas suspensions

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Abstract

© 2015, Pleiades Publishing, Ltd. We investigate propagation of acoustic waves in gas mixtures with fractions of various materials and size particles. We propose a mathematical model; obtain the dispersion relations, the equilibrium and the frozen sound velocity, and the lowand the high-frequency asymptotes of the linear attenuation coefficient; and calculate the dispersion curves. We also analyze the influence of the particle size and the disperse phase parameters on the acoustic wave dissipation and dispersion for a multifraction gas suspension with sand, aluminum, and sand particles. The calculation results are compared to the experiment.

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